
Economic and Legal Instruments of Local Industrial Policy: The Case of Poland

Submitted 22/07/20, 1st revision 28/08/20, 2nd revision 23/09/20, accepted 30/10/20

Przemysław Śleszyński¹, Maciej Nowak², Paweł Mickiewicz³

Abstract:

Purpose: The aim of this paper is to diagnose and evaluate local spatial policy in Poland regarding the development of industrial activities.

Design/Methodology/Approach: Legal and economic instruments currently used in local governments at their lowest level (commune) have been analyzed. The study used methods typical of social sciences, i.e., methods of empirical cognition, descriptive analysis, and deductive and inductive reasoning. In addition, the legal and dogmatic method was used in legal regulations analysis. The key tools of spatial policy were also analyzed: studies of spatial development conditions and directions as well as local spatial development plans in communes covered in the industrial use to the highest degree in these plans.

Findings: Analysis of the instruments used by communes in Poland as part of industrial policy shows that they are not always adequate and keep up with the growing needs associated with strong changes in the organization of industry. Industrial policy at the local level in Poland is a relatively new phenomenon. Therefore, there is a lack of experience that would allow developing long-term legal and economic solutions. This would give communes the basis to develop stable plans and take action to develop Industry 4.0. The state should implement a program to help communes related to stimulation of desirable, i.e. modern industries.

Practical Implications: Results of the analyses carried out should serve as the basis for verifying the legal regulations and economic instruments used by communes regarding industrial policy. Appropriate suggestions have been made in this regard.

Originality/Value: This is the first comprehensive study for Poland, and its value is because this country before 1989 developed in the conditions of a centrally controlled economy and socialist, accelerated industrialization. After 1989, industrial policy was considered a “communist survival” with great disadvantage to the development of the country. It has only been in recent years in public debate and top-level government documents that this issue has been restored to its due rank.

Keywords: Industry, local development, local government economics, Poland.

JEL codes: R58, R12, O25.

Paper Type: Research study.

¹Professor, Institute of Geography and Spatial Organization Polish Academy of Science, psleszyn@twarda.pan.pl

²Professor, West Pomeranian University of Technology in Szczecin, Faculty of Economics, maciej.nowak@zut.edu.pl

³Professor, West Pomeranian University of Technology in Szczecin, Faculty of Economics, pmickiewicz@zut.edu.pl

1. Introduction

Before 1989, Poland developed as part of a centrally managed economy and in the conditions of socialist, accelerated industrialization. This was not only since the state was ruined by war in 1945, but that before 1939, it was a highly agrarian and technologically lagging country. Under such conditions, the authorities' decision to quickly industrialize Poland after World War II was correct, but it was associated with the adoption of all the weaknesses of centrally controlled economy related to the subordination of industry to political and military goals, and to the lack of uniform development of the country and satisfying social needs (Węclawowicz, 1996). In particular, it was characterized by structural (resulting from the industry and organizational structure of the industry) and regional inefficiency (resulting from faulty location of industrial plants), i.e., production costs, goods consumption, gigantomania, severe environmental pollution, lack of restructuring activities (Domański, 1997; Kornai, 1997; Stryjakiewicz, 2000). Also, urbanization processes could not follow industrialization, which was criticized during the system (Dziewoński, 1972). As a result, at the end of the 1970s, the socio-economic and political crisis in Poland marked out, which resulted in the imposition of martial law (1981-1983), and after its abolition, this crisis intensified.

After the fall of the "Iron Curtain" in 1989, industrial policy in Poland was considered a "communist survival" with great disadvantage to the country's development. This occurred in a situation of rapid transformation of the economy, which was adversely affected by both heavy (especially mining, coke industry, metallurgy) and light industry (especially textile, leather, clothing). In 2001, there was the strongest decline in the share of employed in industry (to 21%), and a year later — in gross value added (to 28%) (Rachwał, 2010). Since then, there has been a slow increase in the importance of the second sector in the economy, which was associated with the strong involvement of foreign capital and investments in collapsing plants after 1989. On the one hand, it was beneficial because it gave jobs and "harnessed" Poland to a globalized and advanced technologically the world (Gorzelać, 1996), but on the other hand, it caused monopolistic subordination of sales markets (Domański, 2003), as well as made companies operating in Poland dependent on "parent companies" located abroad (Śleszyński and Korcelli-Olejniczak, 2020), which was one of the main reasons for the still too low innovation of industry and products manufactured in Poland. Other countries of the Central and Eastern Europe region also faced similar problems, even if at the initial stage of the transformation they put much more support to the domestic research and development sector, such as Hungary (Pál and Győri, 2016). Domination of foreign corporations over the regional and local economic systems of less-developed countries is called dependent (development) capitalism (Stiglitz, 2002), and even directly the neo- or post-colonialism.

Simultaneously, throughout the entire period after 1989, neither the government documents nor local strategies generally attached more importance to the development of industry (Radło and Spatek, 2017). Although various public agencies were

developed, but in comparison with other socio-economic activities (road infrastructure, air transport, education, health, sport, environmental protection, public services, regional development, etc.), these were less comprehensive documents based on generalized image of reality and to which no greater weight was attached (apart from the controversial and thus media-bearing restructuring of coal mining). Without a stronger focus on the part of central administration, at the voivodeship (after the administrative reform in 1999) and commune level, industrial policy was also limited. It was replaced by an emphasis in development policy on unspecified and arbitrary “investments” (Derlukiewicz *et al.*, 2018), which became a convenient and roomy “bag”, releasing local entities from pursuing such a policy that would be regionally coherent and rationally exploiting potentials endogenous, classic factors of industry location, etc.

As a result, industrial investments in Poland after 1989 were uncoordinated, which led to unnecessary competition for investors, which did not allow them to get as much benefit as possible by communal governments and thus their communities. One of the largest evaluation reports to date, concerning relatively coordinated transport policy (and indirectly transport and industrial policy), explicitly states that there has been an inefficient dispersion of EU funds for investments (Rosik *et al.*, 2017). Only in recent years in the public debate and top-level government documents, this issue has been restored due rank, and this was associated with the policy of re-industrialization in the European Union and the concepts of Industry 4.0, the “Internet of Things”, etc., resulting from technological and IT acceleration observed in the last decade.

In the light of the above, a key issue is the diagnosis and assessment of the conduct and implementation of industrial policy (if any) at various levels of public administration. In this paper, attention is focused on the local level, on which there is no empirical and review work in this context. This issue is multi-threaded and also depends on the available source data. For these reasons, the study seeks to be a representative survey of industrial policy at local level.

The research goal is also an attempt to find the answer to the question to what extent communes secure areas for industrial functions. This is an important supply and demand issue related to investment opportunities on the one hand, and to local government spatial (and development) policies on the other.

2. Literature Review

Industrial policy can be formulated for specific areas, including relatively small self-government units, which are communes in Poland, as well as specific industries and relating to the leading challenges facing the development of industry (Gough, 2007). In the latter case, the discussion over industrial policy on a local scale has changed radically in recent decades. While in the 1960s, 1970s and 1980s, an almost purely economic dispute over the role of public interventionism prevailed (Beauregard, 1983), including the demarcation of responsibility between the state and local

government (Goldstein and Bergman, 1986, Armstrong and Mullin (1987), and at the turn of the 20th and 21st century, the so-called “New economic geography” and thus the divergence or “incompatibility” of the overarching goals of globalization and local development (Isaksen, 2001), today, the debate is increasingly directed mainly for environmental issues (Bianchi and Labory, 2006; Angel and Rock, 2017). One of the most frequently discussed topics in this area is the issue of energy intensity related to climate change (Skjærseth and Skodvin, 2018).

The subject of this research is quite original current of research on resilience of local economies (West, 2010). In Poland, these issues have been devoted in recent years to the largest cyclical international geographical conference, i.e. the Warsaw Regional Forum, some materials of which are published. Research shows, among others, that regions with highly developed industrial exports in the short term are not resistant to economic shocks but are resistant to them in the long term (Masik, 2019).

Technology issues are the second leading subject and here the so-called *fourth technological revolution* and concept of Industry 4.0 are closely related to them. It is no accident that it was created and developed in Germany (Laasi *et al.*, 2014), as this country (along with neighboring regions, especially from the west and south), as mentioned, is one of the so-called “world factories” (next to the United States and Southeast Asia). Due to Germany’s strong position, this so-called *fourth industrial revolution* became the center of debate in the European Union, including the needs of reindustrialization of the “Old Continent” (Gawlikowska-Hueckel, 2014).

In Poland, this discussion is particularly lively (Negro, 2019) because Polish industry, despite many actions taken, is still not technologically advanced. There are many explanations for this. On the one hand, low expenditures on the research and development sector (Chojnicki and Czyż, 2006), which do not stimulate the desired innovation, are quite commonly emphasized, on the other — but these voices are less numerous (Śleszyński, 2018) — there is a specific dependence of Polish enterprises on mother companies and remaining in the “closed circle” of the subcontractor, i.e. the place defined yet in the concept of the international product life cycle by Vernon’s (1966) or slightly newer so-called “eclectic” theory of international exchange by Dunning (1980). Hence, there is a tendency to focus research and development activities, visible, for example, in patent applications in the industrial “core” of Europe (Szajt, 2016).

The third area of interest and problems is the location and attraction of industrial activities, which on a local and regional scale, is particularly focused around such issues as the role of fiscal tools held by local authorities as stimulators of industrial development (Lawrence *et al.*, 2020) or the use of potentials endogenous in local development policy (Szostak, 2019). This is important in a view of the monopolization of markets often recurring in discussions by the largest entities, although this part of the discussion concerns solutions in the commercial sector (Śleszyński, 2019).

Finally, there is a group of subjects raised on the border of the above-mentioned ones. These include various types of social, environmental, and spatial conflicts around planned and existing industrial investments, as well as the issue of social participation in spatial planning particularly frequently raised (Nadin *et al.*, 2018; Komornicki *et al.*, 2018). In this context, the issue of planning the preparation and legitimacy of detailed planning solutions for the development of industrial functions is a relatively poorly recognized topic in a broader, supra-local perspective. Therefore, this kind of research gap was one of the reasons for addressing the issues of legal and economic conditions of local industrial policy.

Definitely little attention (basically almost none) is devoted to the issues of legal and planning conditions of industrial investments. If anything, the research concerns single, individual cases (Domański *et al.*, 2005) and it is difficult to draw conclusions of this type in the form of more representative regularities. More of this type of work was created regarding various branches of transport, especially in terms of land demand and ensuring planning regulations for areas covered by linear investments (Śleszyński and Komornicki, 2017).

In the literature, a lot of effort is devoted to the issue of industrial activity concentration in specific places. It is associated with the reinterpretation of classical and neoclassical location theories, not only of industry (A. Weber), but also of understood settlement (Christaller 1933; Lösch, 1940). In the last two decades in Poland, many authors have dealt with the concept and functioning of special economic zones (Gwosdz *et al.*, 2008; Smętkowski, 2008; Przybyła and Kulczyk-Dynowska, 2018) and to a slightly lesser extent, the local economic activity zones (Wojtyra, 2020). Studies from Western European countries clearly show that such “thought-out” concentrations are a very effective tool for local development (Bondonio and Engberg, 2000), while comparative studies from Central and Eastern Europe are not univocal (Guagliano and Riela, 2005).

In the context of the issues raised, it is also worth paying attention to those concerning the spatial management system itself. They trigger discussions on issues such as the optimal scope of planning interference (Wang, 2019; Izdebski, 2013), the effectiveness of individual spatial policy tools (Bohme, 2018), integrated development planning (Markowski, 2014) or territorial development (Faludi, 2010; 2018) and its translation into planning tools. It seems that the issues related to space management, which can be perceived at various levels (regional or local) are important (Mckiewicz *et al.*, 2020). Certainly, the local (municipal) perspective seems to be the most important here. It is at this level that the widest possible impact on the development of specific areas and the restrictions associated with their use, including environmental restrictions, can be exerted (Mickiewicz and Nowak, 2019). In the Polish system of spatial management at the local level, two key tools adopted by communal authorities can be distinguished: a study of conditions and directions of spatial development and local spatial development plans (Nowak and Kreja, 2012). The former (not directly binding) constitute, in the legislator’s assumption, directional acts that

comprehensively define the local development principles. Regulatory acts are local spatial development plans, directly imposing both the purpose of a particular area, as well as principles and parameters of development. The problems diagnosed in the literature on the subject, however, are that local plans — as optional acts — are not mandatory and have been adopted for a smaller part of the country (slightly over 30% of the area).

According to numerous authors, this factual state causes consequences in the form of a reduction in the role of studies (Markowski, 2011). While their content must be considered when preparing the new local plans, the investments carried out in areas not covered by the plans (then the basis for the implementation of the investment is an administrative decision) are in no way taken into account (there is no such obligation from the formal and legal perspective). Consequently, how a given study will determine the space of a commune depends more on the authorities of a particular commune than on the formal and legal framework (Kowalewski and Nowak, 2018).

Communal authorities determined to conduct a more active spatial policy will try to include there a comprehensive concept of development, translating into the content of local plans. In the dominant scope, however, the scope of such attempts is limited. Separate problems indicated in the literature will occur when adopting local plans. In a situation where the plans limit previous possibilities of land development, property owners may bring compensation claims to the communes (Izdebski *et al.*, 2018). This is a deterrent to wider adoption of plans. Also, for this reason, even when adopting plans, communes deliberately disregard potentially problematic areas (and thus usually those most in need of such plans). The above issue is related to the inefficiency of public authorities in the spatial management system, in which the inadequate use of planning tools is one of many manifestations (Nowak, 2017; Kowalewski, 2019; Ostrowska, 2017).

The above also translates into conditions related to the conduct of spatial policy for industrial areas. Trends indicated above include both the attraction of industrial activities and the reconciliation of industrial functions with others. In this approach, a broader verification requires both to what extent and how industrial areas are included in planning tools on a national scale, and whether and to what extent the development of an industrial function in the planning dimension limits the inefficiency of public authorities in the spatial management system diagnosed in the literature.

3. Methodology

The study used data for the whole country on the area of industrial functions in two documents: studies of conditions and directions of spatial development (communal studies) and in local spatial development plans (local plans). These data come from a survey sent by the Central Statistical Office to all local governments in Poland based on the order of the ministry responsible for spatial management (in 2018, it was the Ministry of Investment and Development). Among 2 478 communal self-governments

in Poland, 2 302 units (nearly 93%) answered the question about the share of areas designated for industrial functions, and among 2 325 communes with at least one local plan — 2 302 (thus almost all). For communal studies, 1 960 documents provided for areas for production functions, and in the case of local plans, they were 1 852 units (slightly over 80%). Unfortunately, it was not possible to receive data from many large and medium-sized cities (including Białystok, Lublin, Ostrołęka, Rzeszów, Suwałki, Żory).

According to existing regulations, there is no strict definition of production areas in the communal study. They are considered by default as related to industrial production and facilities (warehouses, stores). In contrast, local plans use the category of “technical and production development areas”, which includes “areas of production facilities, warehouses and stores” as well as “mining areas”.

In addition, data on the tangible effects of investments, i.e. usable area of the objects completed, were used (data based on the CSO Local Data Bank). Objects classified in group 125 were considered, i.e. “industrial and warehouse buildings” (class 1251 — buildings intended for production, i.e. factories, film factories, workshops, slaughterhouses, breweries, assembly plants, etc. and class 1252 — tanks, silos and storage buildings, i.e. tanks for liquids and gases, silos for grain, cement and other loose goods, cold stores and specialized storage buildings as well as storage areas) and in group 230, i.e. “complex buildings in industrial areas” (power plants, refineries, chemical plants etc., which do not have the form of a single building). Data do not include non-residential farm buildings.

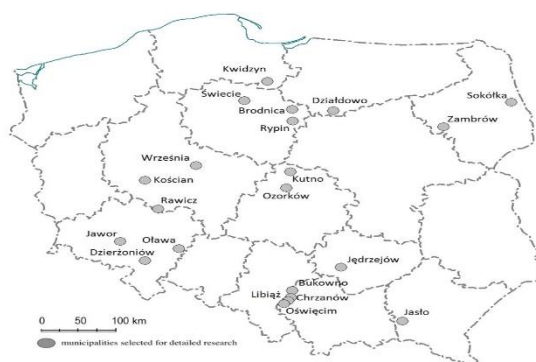
Twenty-one urban communes were selected for detailed research, in which the area allocated in the local plans for technical and production functions exceeded 25% of the total area of plans in the scale of a given commune, the total area or 50 ha. In this way, a set of communes with distinctive (specialized) industrial function was obtained: either through contemporary commune spatial policy or by discounting the previous state (Figure 1). In these communes, local spatial development plans (available in the “Legalis” Legal Information System) were analyzed (twenty-three plans in total, in addition to twenty-four of the remaining communes with the largest area intended for production purposes — both from the perspective of area in hectares and relating to the total area in plans). The focus was put on the text part of the plans, which analyzed:

- principles of shaping and protecting the spatial order included in the general part of plans (indicating the adopted direction of spatial policy at the implementation stage);
- provisions of the specific part of plans relating to technical and production purposes (from the perspective of how detailed and to what parameters and broader guidelines they are included);
- provisions determining the amount of the planning rent for areas with technical and production purpose (which allowed partially to verify the

market-income approach of the commune authorities in relation to the indicated areas).

In addition, studies on the conditions and directions of spatial development of the examined communes were analyzed (i.e. non-implementation, but coordination tools — twenty-one such documents were analyzed) to the extent that they postulate specific spatial solutions relating to the indicated areas. Based on these analyses, it was possible to determine the dominant approach to the method of including technical and industrial areas in spatial policy tools, and as a consequence, to clarify the adopted spatial policy in the indicated municipal communes.

Figure. 1. Location of communes selected for detailed research



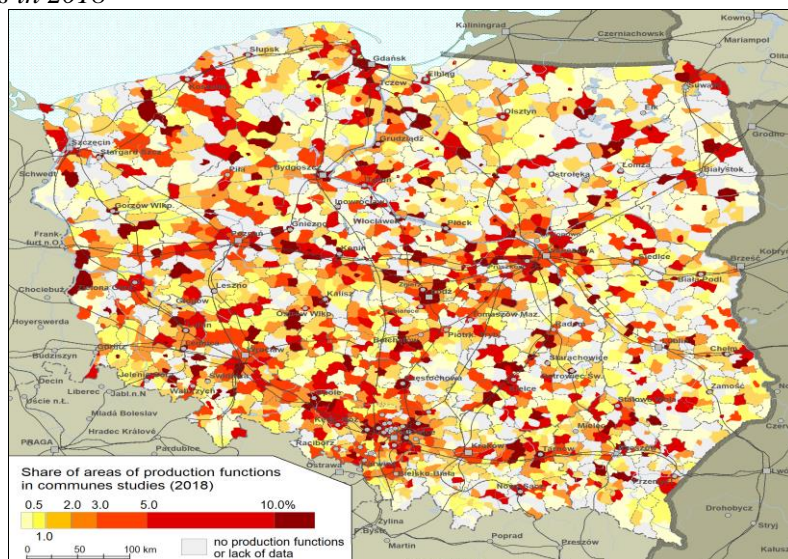
Source: Own research.

4. Results and Discussion

4.1 Industrial Areas in Planning Documents

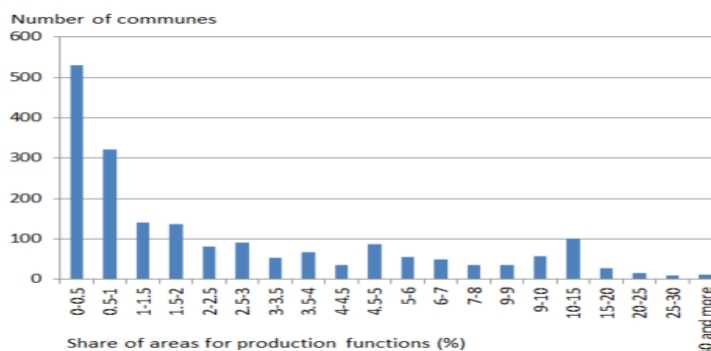
In 2018 in Poland, in communal studies, production functions were intended for 454.7 thousand ha, but these data do not apply to 747 communes, in which updating work was ongoing or there was no study in force in 2018 (the latter has a negligible impact on the results, as it concerned only six local governments). Considering data from previous years, this value increases to 830.8 thousand ha, i.e. up to 2.7% of the country's area. For comparison, 11.2% is allocated for housing development, and 2.7% for communication areas. These values have been quite stable in the last decade. In the years 2009-2018, 2.6-3.0% of the area was allocated for production areas in communal studies. In the whole country, this is illustrated by the map (Figure 2), which shows a huge range of predictions (0-50%). There is a large mosaic pattern of the phenomenon and apart from a few cases, such as clearly higher percentage of production areas in several agglomerations (Warsaw, Silesia, Wrocław, Poznań), there are no general regularities. The histogram also shows that the largest part of communes allocates 1-3% of the area in their studies (Figure 3). Additional calculations indicate that 60% of the area for production functions is concentrated on 20% of the communal area.

Figure 2. Share of communal areas allocated in communal studies for production functions in 2018



Source: Own work based on data from the Ministry of Development and the Central Statistical Office.

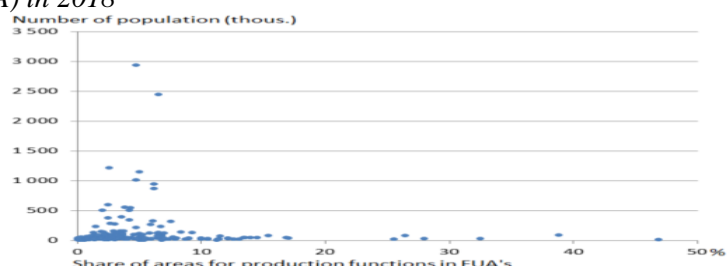
Figure 3. Histogram of allocating the communal areas for production functions in 2018



Source: Own work based on data from the Ministry of Development and the Central Statistical Office.

Innately, industrial activities should be concentrated in larger cities and their surroundings. In accordance with the benefits of agglomeration, the greater the population potential concentrated on a relatively small area, the better the conditions of labor supply and the more effective location of industrial activity. Meanwhile, if the data is presented in the chart, there is a huge dispersion of the share of industrial areas. Figure 4 compares the percentage share in 151 functional urban areas (all those in which the core, i.e. the main city, had at least 20 000 inhabitants) with their population.

Figure 4. Comparison of the share of communal areas allocated in communal studies for production functions with the population of the most important urban functional areas (FUA) in 2018



Source: Own work based on data from the Ministry of Development and the Central Statistical Office.

Areas for technical and industrial functions were found in local plans in 1 375 communes, and they covered 41.8 thousand ha. It is only 0.13% of the country area and 0.4% of local plans. Meanwhile, according to the Central Office of Geodesy and Cartography, industrial areas in Poland occupy 122.8 thousand ha, i.e. 0.39%. This means that most industrial areas are not covered by local plans. Variation in the intensity of these areas is much larger than for communal studies (Figure 5). However, some characteristic interregional differences can be seen. The areas of greater share of technical and production functions are Wielkopolska, Pomorze, Lubuskie, Podkarpackie, northern Podlasie. It is also clear that communes with higher percentage are grouped into fairly clear geographical areas, although values of the share of space in the plans are not high, as they generally do not exceed 1% of the area of the plans. Only in 187 communes, this share was greater than 5%. It can therefore be assumed that the geographical proximity of communes may to some extent affect the spatial policy, or that it is established at a higher level relating to industrial areas (voivodeship spatial development plans) and thus the desired hierarchy of spatial planning can be presumed.

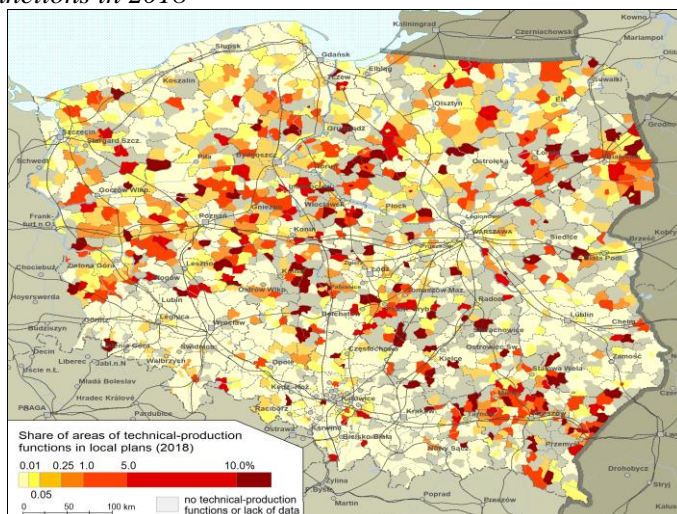
Data on the protection of areas for industrial functions in communal studies and local plans were correlated with the following variables:

- W1: area occupied by industrial areas;
- W2: intensity of industrial sector entities per 1000 inhabitants;
- W3: employment in industry (number of employed persons per 1000 inhabitants);
- W4: share of industrial sector enterprises in general economic entities;
- W5: intensity of new industrial space completed in 2009-2018 (m²/ha).

The results are summarized in Table 1. In general, virtually no strong co-occurrence was found. Only within 0.2-0.3 (weak correlation), there was the coexistence of the explained variable P1 (share of areas intended for production functions in communal studies) and the actual share of these areas, which would not be strange, if not for the

fact that this relationship should be particularly strong. Similar conclusions can be drawn relating to the weak correlation between P1 and the explanatory variable W6 (new industrial investments). However, the most worrying is the fact that no desired patterns were detected in relation to the content of the local plans.

Figure 5. Share of communal areas allocated in local plans for technical and production functions in 2018



Source: Own work based on data from the Ministry of Development and the Central Statistical Office.

Table 1. Analysis of correlations between indicators of the development of industrial functions in planning documents and variables concerning the development of industrial functions

Explained (P) and explaining (W) variables	P1	P2	P3
P1 (share of areas designated for industrial functions in communal studies)	1,000	-0,009	-0,013
P2 (share of areas designated for industrial functions in local plans in relation to the commune area)	-0,009	1,000	0,693
P3 (share of areas designated for industrial functions in local plans in relation to the area of existing local plans)	-0,013	0,693	1,000
W1 (area occupied by industrial areas)	0,278	-0,007	-0,013
W2 (number of industrial sector entities per 1000 inhabitants)	0,046	0,020	-0,009
W3 (employment in industry: number of employed persons per 1000 inhabitants)	0,155	0,010	-0,007
W4 (share of industrial sector enterprises in total of economic entities)	-0,014	0,071	0,027
W5 (intensity of new industrial space completed in 2009-2018; m ² /ha)	0,223	0,000	-0,012

Source: Based on data from the Ministry of Development and the Central Statistical Office. Estimation of employed persons according to P. Śleszyński and K. Wiedermann (2020).

4.2 Features of the Areas Provided in the Local Plans for Technical and Production Functions

To the widest extent, local spatial development plans in cities were analyzed, in which the area related to the production purpose covers at least 25% of the area included in all plans adopted in the commune. Twenty cities were distinguished (Figure 1), in which local plans defining the present destination were successfully identified. It was considered that the perspective related to the scope of production purpose in the total area included in the plans is a key selection criterion — all the more so because from the perspective of the total area alone, in urban communes, over 50 ha are allocated for production purposes only by two urban communes: Lipno (65.0 ha) and Rypin (107.6 ha). It can be assumed that a significant production area relating to the areas covered by the plans, on the one hand, characterizes the important role of production areas in the commune, and on the other, determination of the commune authorities to include them in the sphere of active implementation activities. It was on such occasions that the inclusion of productive destination in spatial policy required a separate approach and appropriate local analyses. As part of the analysis of local plans, three key criteria from the authors' perspective were identified, which were presented in separate Tables.

Table 2. *Rules for the protection and shaping the spatial order in local spatial development plans specifying the production purpose*

General characteristics of the provisions	Diversified range. This part of the plan most often includes rules for finishing the facade, building colors and rules for the construction of fences, boards and advertising devices. In this part, development parameters are also occasionally determined. There are cases, in which there are no explicitly expressed principles or are expressed only vaguely.
Case studies	Local spatial development plans for Bukowno and Dzierżoniów attempted to include general guidelines in this part of the plan, i.e. the requirement to “refer to valuable elements of local tradition and landscape” and “harmonize new and existing buildings”.
Overall assessment	There is no consideration of the perspective covering the production purpose in this policy. There is generally a diverse, chaotic approach.

Source: *Own research.*

Principles of shaping and protecting the spatial order are an obligatory part of local spatial development plans. Theoretically, it should include key directions of actions justifying (from the perspective of protection and shaping the spatial order) specific forms of land development. In practice, however, there is great chaos in individual communes in this respect and this part includes diverse, often completely accidental, provisions. This is also the case in the local plans of the examined communes (Table 3). Imposing a holistic context is completely lacking here. Slight attempts in this respect have been distinguished in individual cases. These attempts — brought to ensure the harmonization of new buildings with the existing ones — are not precise enough from a formal and legal perspective but reflect the intentions of the resolution maker. Also, in such cases, there is a lack of a broader reference to the purpose related to production goals and answers, e.g. whether and to what extent such harmonization

should proceed towards them. Such a concept is also lacking in specific provisions, determining first, specific parameters regarding the development. It can therefore be assumed that in the sphere of regulatory spatial policy, there is a gross lack of expression of the holistic concept of the role of production areas in the functional and spatial structure of the commune.

It was additionally verified how these issues are included in the spatial policy tools applicable to the above communes, which have a creative function, i.e. studies of conditions and directions of spatial development. In the study group, the content of studies relating to industrial areas is very diverse. In three cases, references to this topic are merely general. In others, they are much more elaborate, however, the patterns of approaching the individual issues are different. The following are directional views, included in the studies and related to the indicated areas:

- detailed characteristics of buildings and devices that can be implemented in a given area — even the parameters specific to local plans (biologically active area, parking spaces) are included in the more extensive variant on this occasion;
- care for green areas (in some studies, the inclusion of green areas in individual areas is an option, in others — admission);
- care for terrain functions, collisions, and coordination of individual functions. This may include, for example, a ban on the implementation of the residential function in each area, as well as the admission of a service function under certain conditions. In some cases, this creates a foundation in the studies for identifying a complementary purpose in local plans;
- creating the basis for building restrictions in plans — e.g. by disabling “substandard and unsightly” buildings. There are cases, in which the study directly refers to the content of future local plans. However, often these types of guidelines are overly general.

Table 3. *Detailed provisions of local spatial development plans relating to the areas covered by the production purpose*

General characteristics of the provisions	In general, in most provisions directly related to production intended use, there is a detailed adjustment of building parameters, in particular building intensity (average for maximum size is 1.58, and median 1.2), building height (average for building height is 16.69 has median 14.5 m) and biologically active area (average is 20.67% and median 20%). Access to technical infrastructure and roads is also included. For the most part, the production purpose is one of several defined by a given local plan for various areas.
Key case studies	In some cases (Działdowo, Dzierżoniów, Jawor, Kwidzyn), in addition to the primary purpose, a supplementary purpose is also designated. It is e.g. residential, for green areas, water facilities, parking lots.
Overall assessment	At present, there are no local plans for compositional and aesthetic relationships between production areas and the surroundings.

Source: *Own research.*

For the most part, in the studied local plans, separate parts contain provisions directly assigned to areas intended for production. In Table 3, general directions in this respect were indicated. Attempts at recognition of complementary destination in these areas need more attention. From a formal and legal perspective, it is acceptable (it is also referred to as mixed use) if it is not grossly different from its basic purpose. In this context, it is necessary to separate (occurring individually in the studied group) attempts to admit larger parking lots, green areas, and even occasionally residential buildings in the production areas. While the latter may raise doubts, it can be pointed out that in this approach, it is the supplementary purpose that can be one of the attempts at spatial harmonization of individual production areas with the environment. Attention is drawn to the care for green areas, which should be associated with the postulate of determining a relatively large biologically active area. This does not change the conclusion that in the dominant cases, the plans only specify values for individual indicators, without including these contexts.

Another important issue is the planning pension rate. In local plans, this rate is always tailored to specific areas. Adaptation of a specific planning pension rate to specific areas means that if the value of the property increases through the provisions of the plan, and its owner sells it within 5 years of adopting the plan, he will have to pay the planning fee to the commune. Its amount will refer to the increase in the value of the property and will be the same as the rate assumed in the plan.

Table 4. *Planning pension for areas covered by local spatial development plans for production use*

General characteristics of the provisions	The average for the rate of planning pension in the analyzed local plans is 24.07% and the median is 30%.
Key case studies	Lower than the maximum rate of planning pension is allowed for production areas of the communes of Brodnica, Bukowno, Jawor (0.1%), Kościan and Olawa.
Overall assessment	The maximum rate of planning pension dominates. Deviations from this rate are insignificant, which means that the role of production areas in the communal spatial policy is also linked to the goal of obtaining revenue from fees.

Source: Own research.

According to the most common tendency, commune authorities usually use the maximum rate of planning pension in their local plans. From Table 4 it follows that this trend is also duplicated in relation to areas intended for production. Basically, it can be pointed out that, to a large extent, enabling production facilities to be carried out is subject to the consequence of charging a higher planning fee when selling such property. Commune authorities are free to shape planning annuity rates. The use of a lower rate may be associated with the will to support the development of specific (considered important in the local sphere) buildings. In the analyzed case, even if such an objective is significant for the indicated communes, this does not preclude the pursuit of potential income within the commune's budget.

Two further groups of communes were also analyzed (in which there were no communal municipalities anymore). Those are:

- communes, in which the area intended for industrial purposes amounts to at least 80% of the area included in the plans for these communes (32 communes);
- communes, in which the area intended for industrial purposes is at least 400 ha (16 communes).

From the perspective of this publication, industrial destination in communes is key. Nevertheless, it is worth paying attention to the following issues:

- for the most part, in the indicated group of communes, industrial designation is combined with fields of exploitation of deposits. In such cases, local plans cover only the area of the designated purpose, not including (which is more understandable in these cases from the bottom-up perspective of the plan) the developed principles of shaping and protecting the spatial order;
- in a situation where individual local plans specify production purpose in each area, it results in defining the individual development parameters.

5. Conclusions

Results of the analyses clearly show that communes shape their spatial policy in a quite different way regarding the development of industrial functions. First, it was found that the supply of land for industrial functions is very different and is weakly associated with the functional hierarchy. While in the largest cities, there are more areas designated for industrial functions than in small centers on average, in the remaining types of communes, there is a lot of freedom. The first conclusion is that communes cannot cope with rational forecasting and thus securing the investment areas. It is impossible to justify the fact that peripheral communes sometimes allocate even 10% or more of areas for this type of function, not counting on the fact that the probability of finding so many investors is exceptionally low or none. Such balancing threatens with a waste of land, as these areas should be a reserve for other purposes. High oversupply of land for industrial, warehouse, etc. functions threatens to disperse investments, as well as mismatching jobs and residence, which may generate excessive, unnecessary commuting in the future. More conclusions on this subject could be provided by the analysis of the detailed distribution of areas intended for production functions (industrial, warehouse, etc.), i.e. their borders relating to the existing buildings, e.g. residential.

In general, however, the problem of the lack of prepared areas for industrial functions seems to be more serious. This applies especially to suburban areas predestined for such activities. Considering the fact that in the years 2009-2018 in Poland, 53.8 million m² of usable floor space of facilities classified as industrial and warehouse was commissioned and that it is as much as 13% of industrial and technical space in

local plans, this may mean a strong mismatch of both indicators (in local plans in technical and production areas, the largest part of engineering facilities are squares, communication routes, technical infrastructure, and even greenery and water reservoirs). All in all, this means the need to pay more attention to the problem of communal spatial policy towards industrial investments. There is no doubt that this requires that commune authorities adapt their spatial policy tools. In spatial management systems of different countries, the optimal approach seems to be the one, in which directional tools comprehensively indicate the principles of industrial land development (including certain frameworks for building parameters and relations with other functions) and in regulatory tools, in addition to specifying the indicated parameters, the general part there is a broader concept of industrial (in particular production and technical) use in relation to neighboring areas, environmental protection and key needs of a given commune.

References:

- Angel, D.P., Rock, M.T. (eds.). 2017. *Asia's clean revolution: Industry, growth and the environment*. Routledge.
- Armstrong, J.H., Mullin, J.R. 1987. National Industrial Policy and the Local Planner, *Journal of Planning Literature*, 2, 2, 119-135.
- Beauregard, R. 1983. National industrial policy: A review of recent literature. *International Journal of the American Planning Association*, 49, 1, 89-91.
- Bianchi, P., Labory, S. (ed.). 2006. *International Handbook on Industrial Policy*. Department of Economics and Management, University of Ferrara.
- Bondonio, D., Engberg, J. 2000. Enterprise zones and local employment: evidence from the state's programs. *Regional Science and Urban Economics*, 30, 519-549.
- Chojnicki, Z., Czyż, T. 2006. The role of knowledge in the shaping of a knowledge-based economy and economic development of Poland: a regional approach. *Quaestiones Geographicae*, 25, 7-15.
- Christaller, W. 1933. *Die Zentralen Orte in Süddeutschland. Eine ökonomisch-geographische Untersuchung über die Gesetzmässigkeit der Vorbereitung und Entwicklung der Siedlungen mit städtischen Funktionen*. Jena: Gustav Fischer.
- Derlukiewicz, N., Mempel-Śnieżyk, A., Pilewicz, T., Zdon-Korzeniowska, M. 2018. Investment Offer as an Expression of Marketing Orientation of Polish Local Governments in the Context of their Investment Attractiveness. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 32, 3, 98.
- Domański, B. 2003. Industrial change and foreign direct investment in the post socialist economy: the case of Poland. *European and Regional Studies*, 10(2), 99-118.
- Domański, B. 1997. *Industrial control over the socialist town: Benevolence or exploitation?* Praeger Publishers.
- Domański, B., Gwosdz, K. (ed.). 2005. *Dziesięć lat doświadczeń pierwszej polskiej specjalnej strefy ekonomicznej. Mielec 1995–2005*. Kraków-Mielec: Instytut Geografii i Gospodarki Przestrzennej Uniwersytetu Jagiellońskiego, Agencja Rozwoju Przemysłu S.A. Oddział w Mielcu, Urząd Miejski w Mielcu.
- Dunning, J.H. 1980. Toward an Eclectic Theory of International Production: Some Empirical Tests. *Journal of International Business Studies*, 11, 9-31.
<https://doi.org/10.1057/palgrave.jibs.8490593>.

- Dziewoński, K. 1972. Emerging Patterns of Urbanization in Poland, *Geographia Polonica*, 24, 21-29.
- Faludi, A. 2010. Cohesion, Coherence, Cooperation: European Spatial Planning in the Making? London: Routledge.
- Faludi, A. 2018. The Poverty of Territorialism. A Neo – Medieval View of Europe and European Planning. Cheltenham, Northampton: Edward Elgar.
- Gawlikowska-Hueckel, K. 2014. Industrial and Cohesion Policy and The EU's Reindustrialization Plan: Implications for Poland, *Gospodarka Narodowa*, 5(273), 53-80.
- Goldstein, H., Bergman E. 1986. Institutional arrangement for state and local industrial policy. *Journal of the American Planning Association*, 52, 3, 265-276.
- Gorzela, G. 1996. The Regional Dimension of Transformation in Central Europe. *Regional Policy and Development*, 10, Routledge.
- Gough, J. 2007. The purpose of local industrial policy. *Local Economy*, 1, 2, 69-76.
- Guagliano, C., Riel, S. 2005. Do special economics areas matter in attracting FDI? Evidence from Poland, Hungary, and Czech Republic. *ISLA*.
- Gwosdz, K., Jarczewski, W., Huculak, M., Wiederman, K. 2008. Polish Special Economic Zones: Idea versus Practice, *Environment and Planning C: Government and Policy*, Volume 26, issue 4, 824-840.
- Hans, S., Bohme, K. 2018. Planning in Luxembourg: innovation and tradition under one umbrella? "Europa XXI", 35, 57-68.
- Isaksen, A. 2001. Globalisation: A challenge for local industrial policy. *Canadian Journal of Regional Science*, 24, 1, 101-120.
- Izdebski, H. 2013. *Ideologia i zagospodarowanie przestrzeni*. Wolters Kluwer Business, Warszawa.
- Izdebski, W., Śleszyński, P., Malinowski, Z., Kurska, M. 2018. Analiza morfometryczna planów miejscowych w Polsce „Infrastruktura i ekologia terenów wiejskich” N II/2018, Commission of Technical Rural Infrastructure, Kraków.
- Komornicki, T., Szejgic-Kolenda, B., Degórska, B., Goch, K., Śleszyński, P., Bednarek-Szczepańska, M., Siłka, P. 2018. Spatial planning determinants of cohesion policy implementation in Polish regions. *Europa XXI*, 35, 69-87.
- Kornai, J. 1997. *Struggle and hope: essays on stabilization and reform in a postsocialist economy*. Edward Elgar, Cheltenham.
- Kowalewski, A. 2019. *Interes publiczny i przestrzeń – kilka uwag (w:) J. Danielewicz, D. Sikora – Fernandez (red.) Zarządzanie rozwojem współczesnych miast*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
- Kowalewski, A., Nowak, M. 2018. Chaos przestrzenny i prawo. Uwarunkowania, procesy, skutki, rekomendacje (w:) A. Kowalewski, T. Markowski, P. Śleszyński (red.) *Studia nad chaosem przestrzennym*, t. I, *Studia KPZK PAN*, t. CLXXXII, Warszawa, 128-136,
- Lasi, H., Fettke, P., Kemper, H., Feld, T., Hoffmann, M. 2014. Industry 4.0. *Business & Information Systems Engineering*, 6, 239-242. <https://doi.org/10.1007/s12599-014-0334-4>.
- Lawrence, M., Oberholzer-Gee, F., Canalog, V. 2015. Bidding for Business: Tax Discrimination as Local Industrial Policy. Available at <https://ssrn.com/abstract=3506831>.
- Lösch, A. 1940. *Die räumliche Ordnung der Wirtschaft*. Jena: Gustav Fischer.
- Markowski, T. 2011. Funkcjonowanie gospodarki przestrzennej – założenia budowy modelu zintegrowanego planowania i zarządzania rozwojem (w:) T. Markowski, P. Żuber

- (red.) System planowania przestrzennego i jego rola w strategicznym zarządzaniu rozwojem kraju, Studia KPZK PAN, t. CXXXIV, Warszawa.
- Markowski, T. 2014. Zintegrowane planowanie rozwoju (in:) A. Kukliński, J. Woźniak (ed.), *Przyszłość Wolności, wymiar krajowy – regionalny – międzynarodowy*, Biblioteka Małopolskiego Obserwatorium Polityki Rozwoju, Kraków, 335-367.
- Masik, G. 2019. Economic Sectors in the Research of Economic Resilience of Regions. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 33, 1, 117-129.
- Mickiewicz, P., Nowak, M.J. 2019. The Impact of Nature Conservation Types on the House Investments Development. In *Economic Science for Rural Development Conference Proceedings*, No. 51.
- Mickiewicz, P., Nowak, M.J., Mickiewicz, B., Zvirbule, A. 2020. Environmental Protection and Integrated Development Planning in Local Spatial Policy on the Example of Poland. *Annales Universitatis Apulensis: Series Oeconomica*, 22(1), 11-17.
- Murzyn, D. 2019. The Development of Industry through Smart Specialisation and EU Regional Policy Instruments in Małopolskie Voivodeship (Poland). *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 33(1), 130-142. <https://doi.org/10.24917/20801653.331.10>.
- Nadin, V., Fernández Maldonado, A., Zonneveld, W., Stead, D., ..., et al. 2018. COMPASS – Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe Applied Research 2016-2018 Final Report. ESPON, Luxembourg, p. 120.
- Nowak, M. 2017. Niesprawność władz publicznych a system gospodarki przestrzennej, *Studia KPZK PAN, t. CLXXV*, Warszawa.
- Nowak, M., Kreja, P. 2012. Decyzje o warunkach zabudowy i zagospodarowania terenu jako instrument polityki przestrzennej w polskich metropoliach „Świat Nieruchomości”, 2(80), 4-9.
- Ostrowska, A. 2017. Rozważania nad istnieniem i istotą wolności zabudowy – głos w dyskusji „Annales Universitatis Mariae Curie – Skłodowska” Sectio G, LXIV,I, 153-170.
- Pál, Á., Györi, F. 2016. Contemporary Changes in the Role and Spatial Structure of Industrial Production in Hungary. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 30, 3, 127-146.
- Przybyła, K., Kulczyk-Dynowska, A. 2018. The Impact of Global Economic Crisis on the Functioning of Special Economic Zones in Poland. In: Bilgin M., Danis H., Demir E., Can U. (eds) *Consumer Behavior, Organizational Strategy and Financial Economics. Eurasian Studies in Business and Economics*, vol. 9. Springer.
- Rachwał, T. 2010. Spatial and Division Structure of Polish Industry Against the European Union in the Twentieth Anniversary of the Start of the Transformation Processes. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 16, 105-124.
- Radło, M.J., Spalek, P. 2017. Declared and Actual Polish Industrial Policy in the Years 2007–2014 in the Context of State Aid Data. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 31, 1, 7-23.
- Rosik, P., Komornicki, T., Stępnia, M., Śleszyński, P., Goliszek, S., Pomianowski, W., Kowalczyk, K. 2017. Evaluation of accessibility changes in Poland using the MAI indicator. *Geographia Polonica*, 90, 3, 361-368.
- Skjærseth, J.B., Skodvin T. (eds.). 2018. *Climate change and the oil industry: Common problem, varying strategies*. Manchester University Press.

- Śleszyński, P., Wiedermann, K. 2020. An attempt to estimate the number and structure of employees and the economic base of urban areas in Poland. *Studies of the Industrial Geography Commission of the Polish Geographical Society* (in print).
- Śleszyński, P. 2017. Wyznaczenie i typologia miast średnich tracących funkcje społeczno-gospodarcze, *Przegląd Geograficzny*, 89, 4, 565-593.
- Śleszyński, P. 2018. Research topics of geography of enterprise and decision-control functions in Poland against global trends. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego*, 32, 4, 22-47.
- Śleszyński, P. 2019. Proposition of Location Tax on Retail as a Way to Rationally Shaping the Services Network. *Prace Komisji Geografii Przemysłu PTG*, 33, 1, 106-116.
- Śleszyński, P., Bański J., Degórski M., Komornicki T. 2017. Delimitation of problem areas in Poland. *Geographia Polonica*, 90, 2, 131-138.
- Śleszyński, P., Komornicki, T. 2018. HSR in Poland: Demand, spatial accessibility, and local spatial planning conditions, In: Red. Andrzej Żurkowski, *High-Speed Rail in Poland. Advances and perspectives*, CRC Press/Balkema Taylor & Francis Group, Leiden, 117-130.
- Śleszyński, P., Korcelli-Olejniczak, E. 2021. Inter-firm Ownership Ties and Control Functions: Warsaw in the Networks of Capital Flows at the time of Post-socialist Transition. *Geographia Polonica*, in print.
- Smętkowski, M. 2008. The role of special economic zones in shaping the spatial structure of industry in Poland. *Prace Komisji Geografii Przemysłu PTG*, 10, 204-216.
- Stiglitz, J.E. 2002. *Globalization and Its Discontents*, W.W. Norton & Company.
- Strykiewicz, T. 2000. Industrial transformation in Poland and its spatial dimension. In: Chojnicki, Z., Parysek, J.J. (eds.), *Polish geography. Problems, research, applications*. Poznań: Bogucki Wydawnictwo Naukowe, 19-39.
- Szajt, M. 2016. Spatio-temporal Analysis of Patent Activity for European Union Regions. *Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego*, 30, 3.
- Szostak, D. 2019. Local Development Planning as a Local Government Tool for Shaping the Service Function of the Moryń Commune (Poland). *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 33, 2, 95-110.
- Vernon, R. 1966. International trade and international investment in the product cycle. *Quarterly Journal of Economics*, 80, 2, 190-207.
- Wang, L. 2019. *Changing Spatial Elements in Chinese Socio-economic Five-year Plan: from Project Layout to Spatial Planning*. Singapore, Springer.
- Węclawowicz, G. 1996. *Contemporary Poland. Space and Society*, UCL Press, London.
- West, D.J. 2010. Diversifying the Economic Base of a Rural Local Economy Reliant on Extractive Industries and Dealing with Recession: The Example of a Local Industrial Policy in Northern Michigan. *Local Economy*, 25, 8, 685-690. DOI: 10.1080/02690942.2010.533419.
- Wojtyra, B. 2020. Impact of Local Economic Activity Zones on Socio-Economic Development of Rural Areas. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 34(1), 62-79. <https://doi.org/10.24917/20801653.341.5>.
- Wojtyra, B. 2020. Impact of Local Economic Activity Zones on Socio-Economic Development of Rural Areas. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 34(1), 62-79. <https://doi.org/10.24917/20801653.341.5>.